

**DEPARTMENT OF PLANNING & BUILDING****BUILDING DIVISION****276 Fourth Avenue Chula Vista CA 91910****619-691-5272****619-585-5681 FAX**

PATIO COVERS- LIGHTWEIGHT

FORM 4593

I. GENERAL

A patio cover is defined in the 2001 edition of the California Building Code, Appendix Chapter 31, Division III, Section 3116 as being a one story, roofed structure, not more than 12'0" in height above grade and used only for recreational and/or outdoor living purposes. Patio covers are not permitted to be used as carports, garages, storage structures or as habitable space.

Patio covers may be attached, or detached, and are permitted as an accessory structure to Group U Occupancies, to Group R-3 Occupancies of either single family dwellings or duplexes, to lodging houses or to individual dwelling units of Group R-1 Occupancies.

II. GENERAL PLAN DESIGN REQUIREMENTS:

- A. Patio covers must be open on two or more walls.
- B. Enclosure walls must be open at least 65% of the total wall area of the longer wall and one additional wall.
- C. Sliding glass doors are not permitted to be included in the calculation of open area.
- D. The openings are not permitted to be covered with any permanent materials which obstruct the free passage of light and ventilation except one of the following materials:
 - 1. Insect screening ($\frac{1}{16}$ " x $\frac{1}{16}$ " maximum).
 - 2. Readily removable transparent or transparent plastic panels of $\leq \frac{1}{8}$ " maximum thickness.
- E. For patio covers proposed to be located adjacent to a property line, the wall on the property line side is required to be constructed of one hour rated construction, without openings, from the foundation to the underside of the roof sheathing as follows:
 - 1. Single family dwelling (or duplex) less than 3'0" from property line.
 - 2. Apartments or condominiums less than 5'0" from property line.
- F. Minimum ceiling heights, from the floor of patio cover are as follows:
 - 1. 7'0" to the roof rafters if openings required for light and/or ventilation within the dwelling open into the patio.
 - 2. 6'8" to the roof supporting members if required openings for light and/or ventilation do not connect the dwelling to the patio.
- G. All electrical wiring and equipment should be shown or noted to comply with requirements governing exterior electrical installations.

III. STRUCTURAL REQUIREMENTS:

- A. Concrete mix for footings must meet a minimum compressive strength of $f'c = 2,500$ psi or the following proportions by volume; 1 part Portland cement, $2\frac{1}{2}$ parts sand, $3\frac{1}{2}$ parts of $\frac{3}{4}$ " maximum sized gravel and 7 gallons of water per sack of cement.
- B. Lumber must meet the following requirements
 - 1. Be of #2 Douglas fir-larch or better grade.
 - 2. Must be grade marked.
 - 3. Joists, girders and posts may be required to be protected against decay and termites.
 - 4. Posts must be 4" x 4" minimum nominal dimension.
- C. Posts must be anchored at the lower end and braced on the upper end. Decorative type bracing may be substituted if similar resistance to lateral loading is provided.
- D. Patio cover posts and/or columns may be supported on slabs (minimum $3\frac{1}{2}$ " thickness) of not less than 2500 psi compressive strength, anchored with standard approved post base, installed per manufacturer's installation instructions. Pad footings are not required when the total load (live plus dead) does not exceed 750 pounds.
- F. Specify all proposed roof coverings on plans. If plastic roof coverings are used, they shall be installed such that the corrugations are perpendicular to and across the supports and be in accordance with the manufacturer's installation instructions.
- G. All roofs are required to slope at a minimum of $\frac{1}{4}$ " per foot for drainage purposes.
- H. If roof beams are to be supported by an existing exterior wall, either of the following attachments may be used:
 - 1. A ledger may be fastened to the studs with $\frac{1}{2}$ " x 5" lag screws spaced at 16" on center maximum if the rafter span is 30'0". The ledger shall be the same nominal dimension as the roof rafters.
 - 2. The rafters may be placed directly on the existing top plate of the wall.
 - 3. A ledger may be fastened to the studs with $\frac{1}{2}$ " x 5" lag screws spaced at 48" on center maximum if the rafter span is 10'0". The ledger shall be the same nominal dimension as the roof rafters.

[illegible]

- A - Ledger to unit attachment (see Section III H)
- B - Main Beam or Header
- C - Minimum of 18 ga. U-type hanger
- D - Continuous solid blocking between joists more than 6" in depth
- E - Rafter Span
- F - Concrete Slab
- G - 7'-0" minimum height
- H - Beam to Post connection (see Figure 4 of this page)
- I - Rafter spacing (center to center)
- J - Footing (see Footing detail illustration)
- K - Post spacing (center to center)
- L - 6" minimum distance from edge to post (typical)

Diagram illustrating the connection of a post to a rail, showing dimensions and components:

- Post**: The vertical member being inserted.
- Metal BaseCap**: A cap placed over the post base.
- 1" min. above concrete or provide treated wood**: Dimension indicating the minimum clearance above the base.
- 6" minimum**: Dimension indicating the minimum height of the post above the base.
- 12" minimum**: Dimension indicating the minimum height of the post above the base.
- 3" minimum**: Dimension indicating the minimum height of the post above the base.
- Natural Grade**: The ground level.
- a**: Dimension indicating the width of the post.

Diagram illustrating the connection details for a post-and-rail system. The diagram shows a cross-section of a post embedded in a concrete foundation. Key components and dimensions include:

- Post**: The vertical member being installed.
- Metal BaseCap**: The cap at the top of the post.
- 1" min. above concrete or provide treated wood**: Requirement for the metal basecap or wood treatment.
- 6" minimum**: Dimension for the concrete embedment depth above the natural grade.
- 12" minimum**: Dimension for the concrete embedment depth below the natural grade.
- 2500 psi concrete (minimum)**: Specification for the concrete strength.
- 3" minimum**: Dimension for the concrete embedment depth below the natural grade.
- Natural Grade**: The ground level.
- a**: Dimension for the width of the concrete foundation.

Figure 4/ Post & Beam Connection detail

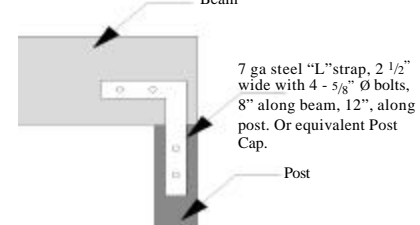


Diagram illustrating a beam-to-post connection using a 7 ga steel "L" strap. The strap is 2 1/2" wide and secured with 6 - 5/8" Ø bolts (3 along the beam, 3 along the post). The connection is labeled "Post" and "Cap.".

IV. DESIGN LOADING

Patio covers are required to be designed to support all roof dead load plus a minimum vertical live load of 10 lbs/ft². In addition, they shall also be required to be designed to resist the minimum horizontal wind loads of 10 lbs/ft², 70 mph, lateral wind load and 7.5 lbs/ft² uplift load (for structures not more than 10 ft above ground). If the patio is proposed to be enclosed with insect screening or removable plastic panels, the structure shall be designed as if it was a fully enclosed structure in accordance with the wind design criteria contained in Chapter 16, Part 2 of the 2001 California Building Code.

V. PLAN SUBMITTAL PACKAGE:

- A. Three plot plans. (See figure #7)
- B. Two copies of a City of Chula Vista Standard Patio Cover Specifications (highlight specific design parameters); or,
- C. Two copies of an International Conference of Building Officials (ICBO) approved plan available from your material supplier. Delete or cross-out details not applicable to the patio design; or,
- D. Two copies of special patio design. Specify roof covering, rafter spans, post spacings and footing details.

MINIMUM RAFTER SIZES ^{1, 2, 3}				
Rafter span (ft)	Rafter spacing (center to center)			
	12"	16"	24"	32"
6	2 x 4	2 x 4	2 x 4	2 x 4
7	2 x 4	2 x 4	2 x 4	2 x 4
8	2 x 4	2 x 4	2 x 6	2 x 6
9	2 x 4	2 x 6	2 x 6	2 x 6
10	2 x 6	2 x 6	2 x 6	2 x 6
11	2 x 6	2 x 6	2 x 8	2 x 8
12	2 x 6	2 x 8	2 x 8	2 x 8
13	2 x 8	2 x 8	2 x 8	2 x 10
14	2 x 8	2 x 8	2 x 10	2 x 10
15	2 x 8	2 x 10	2 x 10	2 x 12
16	2 x 10	2 x 10	2 x 12	2 x 12
17	2 x 10	2 x 12	2 x 12	2 x 12
18	2 x 10	2 x 12		
19	2 x 12			
20	2 x 12			

Post spacing (ft)	MINIMUM BEAM SIZES ^{1, 2, 3}							
	Rafter Span (ft)							
	6	8	10	12	14	16	18	20
4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4
6	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 4	4 x 6
8	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6
10	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 8	4 x 8	4 x 8
12	4 x 8	4 x 8	4 x 8	4 x 8	4 x 8	4 x 10	4 x 10	4 x 10
14	4 x 8	4 x 10	4 x 10	4 x 10	4 x 10	4 x 12	4 x 12	4 x 12
16	4 x 10	4 x 10	4 x 12	4 x 12	4 x 12	4 x 12	4 x 14	4 x 14
18	4 x 10	4 x 12	4 x 12	4 x 14	4 x 14	4 x 14	4 x 16	4 x 16
20	4 x 12	4 x 14	4 x 14	4 x 16	4 x 16	4 x 16		

- E. For enclosed patio structures, submit three floor plans drawn to scale (1/4" = 1'-0") of rooms adjacent to the proposed patio structure.

VI. INSPECTIONS:

An inspection card is issued at the time that the permit is obtained. The inspector signs the card as the construction is inspected and approved. The City of Chula Vista requires that the approved plans, Inspection Record Card and the permit be retained on the site until the final inspection has been approved. Two separate inspections are required for patio covers: 1) Footings, when footings have been excavated but before concrete is placed and; 2) When ledger beams are attached to an existing structure, and; final, when work is complete. Call (619) 409-5434 to schedule an inspection.

VII. TABLES:

The attached tables assume the following conditions:

- A. Roof live load is 10 psf
- B. Roof dead load is less than or equal to 7 psf (i.e. no concrete or clay tile).
- C. Lumber must be #2 DFL or better.
- D. Posts must be 4" x 4" minimum.
- E. Soil bearing capacity is maximum 1,000 psf.

Post spacing (ft)	MINIMUM "a" FOOTING SIZES (inches)							
	Rafter Span (ft) ^{1, 2, 3}							
	6	8	10	12	14	16	18	20
4	12"*	12"*	12"*	12"*	12"*	12"*	12"*	12"*
6	12"*	12"*	12"*	12"*	12"	12"	12"	12"
8	12"*	12"*	12"*	12"	12"	14"	15"	15"
10	12"*	12"*	12"	14"	14"	14"	15"	16"
12	12"*	12"	14"	15"	15"	16"	18"	18"
14	12"	12"	14"	15"	16"	18"	18"	20"
16	12"	14"	14"	16"	16"	18"	20"	20"
18	12"	14"	15"	18"	18"	20"	20"	22"
20	14"	14"	16"	18"	20"	20"	22"	24"

¹Roof live load = 10 psf; dead load = 7 psf

²All lumber to be Douglas Fir-Larch No. 2

³Roof total load exceeding 17 psf shall be design by a

California Registered Architect, Civil or Structural Engineer.

*Post may be supported by concrete slab as stated in Section III, Item D.

Figure 6/ Enclosed patio section

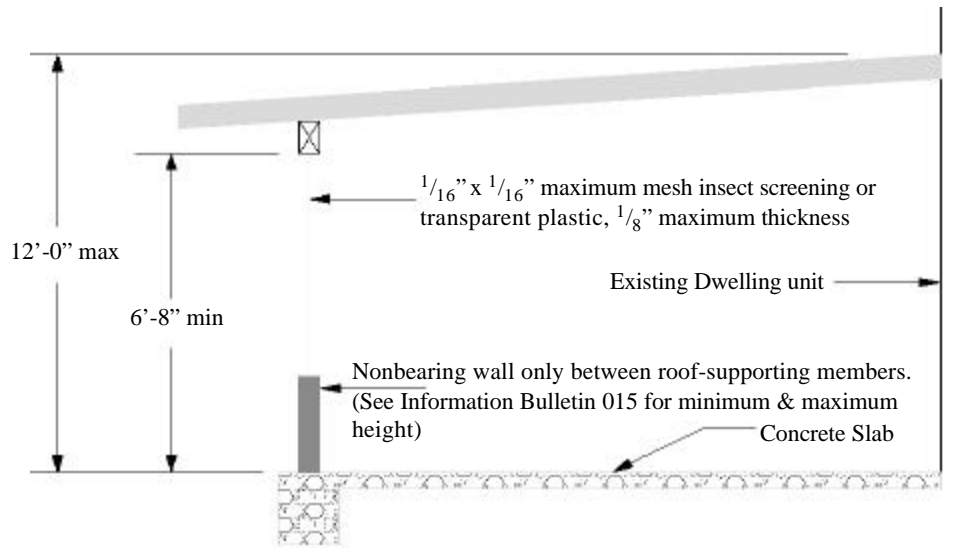


Figure 7/ Plot Plan

Contact the Planning Division at (619) 691-5101 for yard setbacks and other requirements before drawing the plot plan.

Three copies of the plot plan are required for a permit. You must include information on each of the following items on the plot plan:

1. Name of owner.
2. Address and Assessor's Parcel Number where patio is to be built.
3. Legal description of property.
4. North arrow and scale. Suggested scale: 1" = 20'
5. Boundaries and dimensions of property.*
6. Names of bordering streets.*
7. Width of alley(s), if any.*
8. Location and width of easements. Private easements should be shown on the property's deed.*
9. Location and dimensions of existing buildings, structures, retaining walls, paved parking and driveways. Include distance from property line.
10. Location and dimensions of proposed patio. Include distance to property line.
11. Location and spacing of all posts supporting patio.
12. Existing survey hubs, pipes and similar permanently installed property line identification.

*This information is available from Planning Division.

